



IMPROVEMENT OF IFRS APPLICATION POLICY IN RELATION TO LAND ASSETS OF AGRICULTURAL ENTERPRISES

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ABSTRACT

The climate change and food security are closely related to the effective use and conservation of agricultural land. This research is devoted to improving the methodological and methodical procedures for the IFRS's application to the accounting of the land assets of agricultural enterprises, primarily for the needs of developing countries. Research of the accounting state of agrarian enterprises in Ukraine was carried out using statistical methods, methods of analysis and synthesis. Interviews of 3000 different accountants as to the land tenure of enterprises revealed methodological and methodical difficulties in applying IFRS to the land assets of agricultural enterprises. A special need consists in improvement of the valuation procedures for such assets. On the example of the United States and Ukraine, it has been established that, for the purpose of determining the fair value of agricultural assets, it is difficult for accountants to use generalized approaches to IFRS that do not take into account branch specifics and differences in socioeconomic environments in different countries. For developing countries with a strong agricultural potential, the most effective is the f the land potential of agricultural enterprises based on the rental income.



Accordingly, the calculation methodology should be incorporated into their current accounting policy. Based on the simulation and forecasting technique it was determined, that valuation of the land assets of agricultural enterprises by the rental income method increases their cost by almost three times compared with the calculation based on the rental. The carried out studies form also the methodological framework for the further improvement of IFRS, including development of a separate industry-specific IAS (IFRS) "Agricultural Land".

Keywords: land assets of agricultural enterprises, fair valuation, accounting policy, IFRS, industry-specific accounting standards, rental income

1. INTRODUCTION

At the World Economic Forum in Davos in 2018, climate change and food security are called major future challenges of humanity. These problems are closely linked to the efficient use and conservation of agricultural lands. If accounting community can and should help in solving these problems?

First of all, we need to show with the "business language" that agricultural lands are a special asset. Special so as to have a separate presentation in accounting and financial statements.

In fact, both natural science and politicum distinguish agricultural lands in their activities, and only we continue to consider it together with other property, plant and equipment in IAS 16 Property, Plant and Equipment, or investment property in IAS 40 Investment Property.

It is our belief that the participation of accountants in solving food and environmental problems of ensuring sustainable human development is an increase in the status of agricultural land in financial statements. This is a more meaningful accounting of the land assets of agricultural enterprises and taking into account this episode in macroeconomic policy.

The issue of methodological framework for the arrangement of accounting of the land assets is particularly relevant for countries that reorient the development of agrarian production to market conditions and plan sustainable development of rural areas. This work, which improves the procedures for the IFRS application, generally

contributes to the development of a separate standard "Agricultural Land", improves the quality and credibility of financial statements.

2. LITERARY REVIEW

Solving the problems of effective information provision of agricultural land management is important for researchers. Such studies are carried out in the context of increasing the value of these assets in macroeconomic policy, in the theory and methodology of accounting, financial statements, improving their evaluation and information provision of the mechanisms for fair distribution of land rent, etc.

Attention to the calculation of the agrarian wealth value in macroeconomic policy is increased. Roy and Thomassin (2014) proposed a hedonic model to assess natural resources. It is proposed to be used in the agrarian sector to account changes in land use.

The data assessment from various public sources on land use and land lease for formation of national accounts was conducted by Monge, Bryant and Anderson (2014). Adger and Whitby (1993) not only drew attention in the work "Natural-resource accounting in the land-use sector: theory and practice", but also solved the problem of consideration the land potential in total income.

The results of the researches, in which the economic and legal preconditions for the determination and accounting of rent are disclosed on the basis of the main provisions and ideas of institutional theory, agency theory and rent theory (BARDASH; OSADCHA, 2018; OSADCHA; BARDASH, 2017), carried out by are noteworthy.

Important is the study of the aspect of land asset valuation. Helbing, et al. (2017) offer alternatives to official procedures and evaluation methods in the paper "Estimating location values of agricultural land".

Borchers, Ifft and Kuethe (2014) consider relation of the price of agricultural land to use of values and benefits in the study. They argue that the price of land is due to a complex set of factors that are not always related to agricultural activity.

Choumert and Phélinas (2015) and Middelberg (2014) refer to the necessity to take into consideration the features of the socioeconomic status of different countries at the valuation of agricultural land in the study "Determinants of agricultural land

values in Argentina" in the study "Agricultural land valuation methods used by financiers: The case of South Africa".

The considerable part of the researches is devoted to the representation of the land assets in accounting and financial statements. In particular, Bruckner et al. (2015). offer a structured review and a comparative assessment of the existing accounting methods and models for calculating land traces. Researchers identify differences in available accounting methods and point out their shortcomings. They propose options for the further development of global land registry methods, in particular by highlighting the benefits of hybrid accounting approaches as a basis for their reliable and transparent assessment.

The works of scientists of the academic science of Ukraine (BEZDUSHNA, 2014; OSTAPCHUK; KORINENKO, 2018; ZDYRKO, 2016) are devoted to solving the problem of accounting of agricultural land and land use rights through the application of a separate industry-specific standard, the strengthening of accounting and control procedures.

It is important to assess the effectiveness of IFRS as to the disclosure of information about the land assets of enterprises. So Zhang Y. and Andrew J. analyzed the disclosure of information related to the land and land use rights in the statements of Chinese companies. The authors note that due to certain legal and economic features of land use in China, some of the principles of IFRS cannot be met by Chinese companies, as a result of which their financial statements are not comparable to those of companies from other countries in terms of land (ZHANG; ANDREW, 2010).

When evaluating positively the results of our colleagues' researches it is worth noting their restrictions in seeking approaches to strengthening the role of accounting and financial statements in preserving and ensuring the effective use of agricultural land at different levels of management.

So, the tasks of our research are:

- it is necessary to clarify the possibilities of national standards and IFRS to provide completely answers to the latest management requests as to these assets;

- it is necessary to define conceptually the need for a separate IAS “Agricultural Land”;
- concrete ways to improve the accounting policies as to the land assets of agricultural enterprises for now should be proposed.

The research objective consists in improving the methodological (industry-specific accounting policy) and methodical (determination of fair value) procedures for the IFRS’s application to the accounting of the land assets of agricultural enterprises, primarily for the needs of developing countries, and in substantiating the feasibility of developing an IAS/IFRS “Agricultural Land”.

3. MATERIALS AND METHODS

The idea of the research is aimed at increasing the socioeconomic responsibility of the accounting profession for the effective use of the land assets of agricultural enterprises. The inconsistency of the land accounting status with the needs for sustainable development is solved by methodological and methodical improvements to the application of national accounting standards and IFRS. The general and special methods stated below were used in the research:

- statistical methods, including the method of questioning - to identify the main trends and problems of accounting for the land assets;
- analogue and comparative methods - in the exercise of the comparative assessment of the approaches of IFRS and national standards, in particular, the Indonesian Land Accounting Standard, the comparison of the land valuation indicators in the United States and Ukraine;
- methods of analysis and synthesis - to assess the effectiveness of methods for determining the fair value of the land assets of agricultural enterprises;
- method of generalization - when determining the components of improvement of the accounting policies for agricultural land in the organizational, methodological and methodical aspects;
- methods of simulation and forecasting - when determining the impact of accounting policies on macroeconomic policies, the need for special attention to land resources in macroeconomic policy.

The valuation of land, the right to permanent use and the right to land lease for its entering on the balance sheet is made using the methodology of expert monetary valuation, in particular methods of direct and indirect capitalization of rental income and net operating income.

The economic and mathematical methods of research and the method of generalization are applied in the process of calculating the potential value of land capital in the financial statements of agrarian enterprises of Ukraine subject to a new accounting policy.

The statistical data of the State Statistics Service of Ukraine, the State Service of Ukraine for Geodesy, Cartography and Cadaster, the National Bank of Ukraine; the official data on the website of the United States Department of Agriculture, data from the site of the accountants of Indonesia, International and national standards of accounting and financial statements, national and international laws and regulations on issues of agricultural land valuation are the sources of information in the research.

4. RESEARCH RESULTS

4.1. Land assets beyond accounting

Ukraine is a typical representative of developing countries, with growing exports of agricultural raw materials. Its population, with a share of 0.5% of the people of Earth, has 8.8% of black soil - the best land in the world due to its natural fertility (Oficijnyj sajt Derzhavnoji sluzhby statystyky Ukrajinj, 2018).

At the same time, agricultural land in Ukraine is not presented in the accounting of agrarian enterprises.

According to the current legal norms, the main owners of land in Ukraine are individuals (6.8 million villagers) and the state. The agrarian business is not yet able to own land on the right of ownership. It cannot buy land, because the moratorium on the purchase and sale of agricultural land in Ukraine is extended until 2020. Instead, business has legislative opportunities for entering into land lease agreements and emphyteusis. At the beginning of 2017, such contracts were concluded for 18.7 and 1.4 million hectares, respectively.

The legislation of Ukraine defines the minimum lease term of 7 years. Now the average term of lease exceeds 10 years. These rights are not only enjoyed but also actively managed through the transfer to sublease, the possibility of selling corporate rights without obtaining the consent of the lessor, etc. However, the right to lease land, to emphyteusis and to permanent use (this is still 0.77 million hectares) is also not presented in the balance sheets of Ukrainian agrarian enterprises (DERZHAVNA SLUZHBA UKRAJINY, 2017; PYTANJ GHEODEZIJI, KARTOGHRAFIJI TA KADASTRU, 2018). Why?

Within the framework of the scientific research program of the National Academy of Agrarian Sciences of Ukraine for 2016-2020, "Theoretical and methodological principles of the transformation of the institutional basis of accounting and harmonization of accounting in the agrarian sector of the economy", we studied the reasons for this, both in terms of the imperfection of land relations in Ukraine and complexity of application and imperfections of IAS and IFRS for agricultural land accounting.

4.2. Identification of the reasons for low presentation of the land assets in accounting

Superficially the reason is the low discipline of accountants in complying with the national accounting regulations (standards). (Ukraine implemented IFRS in the early 2000s. On the whole, the national standards are identical to IFRS).

However, questionnaire survey of accountants of agrarian enterprises revealed other problems. The survey was attended by over 3,000 accountants from all regions of Ukraine. The questionnaire survey was held in early 2018 within the framework of training seminars, periodically held by public professional associations - the Federation of Auditors, Accountants and Financiers of the agro-industrial complex of Ukraine. The purpose of the survey is to identify the reasons for the low presentation of land potential in accounting of enterprises.

According to the results of the questionnaire survey, the absence of significant differences in the responses of accountants of enterprises with different bank of land was established (we formed land groups as follows: up to 1000 hectares, 1000 to 5000 hectares, more than 5,000 hectares). Answers to the reasons for not accounting the land assets are given as follows:

- lack of control as to compliance with IFRS on the part of the state institutions - is the reason for 72-84% of the respondents;
- insufficient professional knowledge of accountants – 65-85%;
- lack of motivation on the part of the owners side – 61-78%;
- the high cost of an independent expert estimation for entering the land assets on a balance sheet – 83-91%;
- low-level regulating and complexity of procedures for valuation and accounting of the land assets in accounting standards, lack of methodological recommendations for their application - 92 to 98%;
- mismatch of the valuation of these assets according to the methodology of IFRS and the “shadow” market - 48-81%.

So, indeed, the level of opportunities and professional training of accountants itself is not enough to represent such specific assets. But no less important is the complexity of applying IFRS, their low regulating particularly to the specifics of accounting for such assets in the agricultural sector.

The biggest problems arise with the assessment (almost 98% of the respondents). For agricultural land, a general approach to asset valuation is provided for. For example, IFRS 13 - Fair Value Measurement, gives priority to a market approach that is difficult to apply in an underdeveloped market. IFRS regulate that if the fair value of land cannot be estimated through the application of a market (comparative) approach (a moratorium is in effect in Ukraine), then the income approach is applied. It is based on a theoretical basis on the direct relationship between rent and the price of land. The method of calculating fair value under such an approach is simpler, and therefore more accessible to accountants.

The rental market for agricultural land in Ukraine has existed since 2000. When assessing (in order to enter on the balance sheet), capitalization of rent is carried out on the average interest rate of deposits. But there is a problem in determining the fair value of such an approach for the developing countries that have not yet formed a competitive environment in the land lease market, in financial and other markets (Table 1). This is an obvious fact for scientists. In particular, academicians of NAAS, Shpychak (2018) notes that the estimation calculated by this

method in the United States, corresponds to the market value with a deviation of about 10.8% (11250 and 10107), while in Ukraine it differs by 2.92 times, or by 292.1%.

Table 1: Problem of estimating arable land for entering on the balance sheet by the income method of 2016

Indicator	Value
Ukraine	
Deposit rate, %	15
Rent for 1 ha, USD	64.2
"Market" estimated price of land, USD (by the income method)	428
Land price, USD (average in the "shadow" market)	1250
Deviation of the estimated price from the actual one, %	+192.1
USA	
Deposit rate, %	3
Rent for 1 ha, U.S. dollars	336
Estimated price of land, USD (by the income method)	11200
Market price of land, USD	10107
Deviation of the estimated price from the actual one, %	+10.8

Source: Shpychak (2018)

Calculated based on the data of the State Statistics Service of Ukraine and the United States Department of Agriculture. So, the problem exists, and it is necessary to adapt the application of IFRS 13 to certain economic features of different institutional environments.

We arrive to the same conclusion also at the study of accounting problems and the determination of the fair value of the rights to lease, the emphyteum and the rights of permanent use of land. The estimation of these assets by the income method based on the rental has problems similar to the above-mentioned.

The research of audit practice in Ukraine and the questionnaire data show that when selling a business, the right to land lease and the emphyteusis is taken into account in the price of such transactions. The right to land lease is conditionally estimated by agreement of the parties for 200 to 500 USD per 1 hectare of arable land, depending on the duration of the lease (7 to 49 years).

Emphyteusis for more than 50 years is estimated starting from 1000 USD per 1 hectare of arable land, depending on the location of the land plot, soil fertility, etc (EVOLAND, 2018). But for accounting purposes, this information cannot be applied, since these land assets are not entered on the balance sheet, and therefore the rights to lease them, the emphyteusis are not formally the objects of transactions.

4.3. Assessment of single efforts to solve problems in Ukraine

It should be noted that there is a practice of entering of rights to land lease on the balance sheet in recent years in Ukraine. Such rights are acquired at open auctions from the transfer of communal land for lease. However, the market of the rights to the lease of communal land in rural areas is insignificant in size of land masses (10 to 100 ha). On average, such rights are sold at a price of about USD 100 per 1 ha with the lease term of 7 years (EVOLAND, 2018).

The public sector and a number of agricultural holdings whose shares are located on the London and Warsaw Stock Exchanges formally comply with the procedures for presentation the land use rights in the financial statements in Ukraine. But for them, the rights of permanent use and land use rights are assessed by independent experts. Such an assessment is based on the generalized approaches. It often does not take into consideration the specifics of the industry, has a non-comparable methodology and methodical approaches that does not comply with the principles of IFRS.

The accounting policy in the system of the National Academy of Agrarian Sciences of Ukraine is a positive example in solving this problem. But the right to permanent use of arable land of experimental farms of virtually identical fertility is also there assessed by independent experts at a cost of USD 127 to USD Thousand 5.7 per hectare¹. The reason is the same - International Valuation Standards, like IFRS, are not sufficiently meaningful to take into consideration industrial specifics and features of the markets of different countries.

So, formally, enterprises not only use, but also dispose of the land assets that are not in their private ownership. However, the accounting treatment of rights to land use by the methodology of IFRS is problematic for accountants. This problem, as well as the representation of the land assets being in the property, requires improvement of the procedures for the application of IFRS. Firstly, in terms of industrial specifics taken into consideration by them; and secondly, overcoming their weak elasticity to level differences in the state of the economies of different countries.

4.4. Prospects of the proposals of foreign scientists and practitioners

¹ According to the data of internal statements of experimental farms of the system of the National Academy of Agrarian Sciences of Ukraine.

DiPiazza Jr. and Eccles (2002) pointed to the first problem and suggested ways of solving it in the work "Building Public Trust: The Future of Corporate Reporting" (HELBING, et al., 2017). They proved that approaches to the valuation of assets differ substantially by sectors of the economy. The uniform methodology of accounting and statements of assets in different sectors of the economy, which is set out in IFRS, needs to be reviewed.

According to the authors' opinion the land, its fertility is the determining asset for the agrarian business to provide people with safe and high-quality food. Conversely, the land assets are not so important for industry and other industries. It is clear that the rating of importance of the same type of assets by industry is significantly different. It is important to strengthen in IFRS the methodological definition with the value essence of certain assets, their determinability for a particular industry-specific economy.

Therefore, proposal of the above-mentioned scientists regarding the development and reduction of industry standards to practice are justified in full. Moreover, there are already a number of similar IFRSs (construction, insurance, banking sphere etc.). In the agricultural sector, such a standard is IAS 41 – Agriculture for the accounting of biological assets and agricultural products.

Taking into account the food and environmental problems of the world, the consideration of the introduction of a separate IFRS "Agricultural Land" or relevant amendments to IAS 41 becomes relevant. At the time of deepening the representation of this asset most important for humanity in financial statements.

DiPiazza Jr. and Eccles (2002) considered the introduction of the second-level standards, which, in addition to IFRS, would regulate the disclosure of information in certain areas as a possible option to solve this problem. The scientists proposed a three-level model of financial statements: general standards, industry-specific and corporate standards.

They noted that the representatives of industries, public institutions of countries for which some or other sectors are at the forefront must join to the development of such standards. In general, the existence of industry-specific standards is extremely important for investors, for industry-specific markets, for state management of entire countries (DIPIAZZA JR.; ECCLES, 2002).

Ukraine, which positions itself in the world as a large agrarian country with unique lands, should not stand aside in this work. In addition, for Ukraine, an in-depth presentation of land potential in financial statements is extremely important on the threshold of the introduction of the land market. According to the researches of the National Scientific Center "Institute of Agrarian Economics", in the case of cancellation of the moratorium on the land market prohibition about 14 percent of the current owners (owning about 3 million hectares) will be ready to sell it right away (LUPENKO, et al., 2018). The total potential of the market is estimated 12 to 18 million hectares of land. Such a large-scale market cannot remain without proper accounting.

In general, solving the problems of applying IFRS in Ukraine is in line with the views and proposals of foreign researchers and proves the need to combine the efforts of science and the professional community to introduce a special accounting policy for agricultural land, up to the introduction of a separate Standard.

International experience has examples of such work. In Indonesia, in 1998, a separate standard of land accounting and use rights was adopted - PSAK 47 Akuntansi Tanah (Accounting for Land) (PERNYATAAN STANDAR AKUNTANSI KEUANGAN, 2011). According to the standard, in the accounting, land should be represented as a special component of fixed assets, and all land rights - as "Deferred Costs - Land Rights". These assets are represented separately from other rights in the enterprise's balance sheet.

Land rights are subject to depreciation during the period of their validity or economic viability of the land, whichever is shorter. Economic benefits and economic expediency of the recognition of land rights should be evaluated and established in terms of changes in the conditions of economic activity.

The financial statements disclose separately information about these two groups of assets: land and land rights. The Notes to the Financial Statements disclose the type of land rights, their term of validity, depreciation policy as to them (PERNYATAAN STANDAR AKUNTANSI KEUANGAN, 2011).

Although Indonesia is not currently applying this standard (Indonesia has moved to IFRS), its methodological potential has provided a powerful basis for effective accounting of Indonesia's land under IFRS.

4.5. Conceptual provisions for solving the problem

In Ukraine, the issue of introducing a separate national standard for agricultural land accounting is raised for a long time. On our initiative, by the decision of the Board of the Ministry of Agrarian Policy of Ukraine dated February 03, 2009 the Concept of accounting development in the agrarian sector of the Ukrainian economy was adopted, where the development and adoption of such a standard was foreseen by 2015.

Its main tasks are defined as follows:

- a) a separate presentation in the financial statements of the land assets having vital importance for solving economic and food problems;
- b) ensuring investment transparency and attractiveness of agrarian business;
- c) formation of information guidelines for pricing in the introduction of a full-fledged market for land of agricultural purpose.

However, now this project, due to the reform of the Ministry of Agrarian Policy of Ukraine, is more appropriate to implement in the preparation of relevant methodological recommendations. In 2017, the Government of Ukraine adopted a new Order of normative monetary valuation of agricultural land (MINISTERSTVO AGHRARNOJI POLITYKY TA PRODOVOLJSTVA UKRAJINY, 2017). The state budget of Ukraine for 2018 provides for a nation-wide regulatory and monetary valuation of agricultural land. For practicing accountants, these are additional incentives and targets for organizing the accounting of land assets of agricultural enterprises.

So, aiming at developing and approving a separate national (agricultural) accounting regulation (standard) for agricultural land, we consider adoption of mandatory guidelines for the application of IFRS to agricultural land as the first step in this way.

The purpose is to develop an industry-specific accounting policy in order to fully represent the land assets in the financial statements of agricultural enterprises.

Improving the accounting policy for agricultural land provides for a combination of a number of components:

- **Organizational** - development of the typical accounting policy for land assets and procedures for accounting the centralized (under the Ministry's system) periodic calculations of the fair value of land assets in the accounting policies of enterprises;
- **Methodological** - coordination of valuation procedures, depreciation policy, disclosure of information in financial statements;
- **Methodical** - inventory, documentation, representation on bookkeeping accounts and financial statements.

4.6. High priority of the issue of assessment of the land assets

First of all, our efforts are aimed at researching and solving problems with determination of the fair value of land assets. This is the biggest problem of applying IFRS for practicing accountants. This is a problem of clear regulating the application of IFRS in the practice of developing countries.

The new accounting policy aims at choosing the most effective assessment techniques at a specific time.

Our researches prove that in today's conditions, capitalization of not net operating but rental income (actual or expected) is effective for the procedures of accounting valuation of land assets in the agrarian sector.

Net operating income is determined on the basis of the analysis of market rates for land rent. But, as stated above, today it is ineffective for Ukraine. The reason is the non-conformity of the land relations and the market environment with the methodology laid down in IFRS.

Today, the most effective for these countries is the choice of accounting policies by the rental income.

The rent income is calculated as the difference between the expected income from the production received on the land (actual or conditional), and the production costs and profits of the producer.

Direct capitalization is based on the assumption of the continuity and unchangeability of cash flow from the use of land. In this case, the value of the land plot is determined as the ratio of net operating or rental income to the capitalization rate by the formula as follows:

$$Vdc = \frac{In}{Cr}, \quad (1)$$

where

Vdc – value of the land plot determined by the direct capitalization (in UAH);

In – net operating or rental income (in UAH);

Cr – capitalization rate (decimally).

Indirect capitalization is based on the assumption of limitation and variability of cash flow from the use of a land plot for a certain period with its subsequent sale on the market. In this case, the value of the land plot is determined as the current value of future income from its use and sale by the formula as follows:

$$Vidc = \sum_{t=1}^n \frac{t + Ir}{(1 + Cr)^t} + P, \quad (2)$$

where *Vidc* – value of the land plot determined by the indirect capitalization (in UAH);

Ir – expected net operating or rental income for the *i*-year (in UAH);

P – current reversion value;

t – period (in years), which is considered at the indirect capitalization of net operating or rental income.

It is efficiently to use the direct capitalization for determining the value of land plots, but indirect capitalization should be applied to the calculation of the cost of the lease right, as in this case the limited time use of the land plot takes place.

To determine the rental value of land plots used as agricultural land, a set of plants typical for the area is considered, which ensures its efficient use, crop rotation observance and preservation of soil fertility. The expected income from products obtained on a land plot is the product of normal (typical) harvest of agricultural crops and prices of its sale on the market.

The production costs include: technological costs for obtaining agricultural products (including general administrative expenses); costs of primary processing; selling expenses.

The producer's profit is defined as the percentage of total expenditures or expected income from products obtained on the land plot.

Organizational procedures for evaluating the proposed methodology can be carried out by accountants either independently or on the basis of data calculated by the relevant regional subdivisions of the Ministries of Agriculture. The sources of information for conducting these calculations are official and available in all countries. For Ukraine they are listed in the list of primary sources (OFICIJNYJ SAJT NACIONALJNOGHO BANKU UKRAJINY; DERZHAVNA SLUZHBA STATYSTYKY UKRAJINY, 2017).

As opposed to calculation of the value of land by capitalizing the rent, the methodology based on the rental income takes into account the business's efficiency, economic value and soil fertility. Comparison of the results of these two approaches in Ukraine as a whole varies threefold (Table 2).

Table 2: Valuation of arable land by the income method (based on the rent and rental income - as a whole in Ukraine as of January 01, 2017)

Indicator	Based on the rent	Based on the rental income
Ukraine		
Capitalization rate for land, % ¹	10.4	10.4
Rent (rental income), USD for 1 ha	40.20 ²	112.16 ³
Fair value, USD for 1 ha (accounting estimate)	387	1078
Fair value of land, USD billion (32.5 million ha of arable land)	12.57	35.04

¹ Adopted at the risk-free rate level - the interest rate on deposits of non-financial corporations (weighted average interest rate in the annual calculation) according to the financial statistics of the NBU. Section 4 "Financial Markets" (Finansova statystyka NBU).

² The average land rent for land shares in Ukraine according to the State Geocadastre as of January 01, 2017 (Derzhavna sluzhba Ukrainy z pytanj gheodeziji, kartoghrafiji ta kadastru).

³ Calculated according to the Methodology (Kabinet Ministriv Ukrainy), the calculation procedure and information support are described above.

⁴ The official NBU rate as of December 31, 2016 is 1:27.19 UAH (Oficijnyj kurs NBU).

Comparison of different approaches to the assessment of the rights to lease of agricultural land also gives priority to accounting policies in the approaches based on the rental income. The value of the lease right is defined as the current value of the future additional income for the tenant by the formula as follows:

$$V_{lacr} = \sum_{t=1}^n \frac{t * Ir}{(1 + Cr)^t}, \tag{3}$$

where

Vidcr – value of the lease right to land determined by the indirect net capitalization (in UAH);

Ir – additional income of the tenant for the 1st year (in UAH);

t – period of lease of land, in years.

Additional income is calculated as the difference between the rental income and the rent specified in the lease agreement.

In applying this approach as a whole in Ukraine we obtain the following indicators of the value of the lease right to land when entering on the balance sheet of the tenant (Table 3). (The forecasting period in the calculation in Table 3 is taken at the level of 10 years. This is the average term of lease in Ukraine under the agreements as of January 01, 2017) (DERZHAVNA SLUZHBA UKRAJINY Z PYTANJ GHEODEZIJI, KARTOGHRAFIJI TA KADASTRU, 2018).

Table 3: Calculation of the value of the lease right to arable land for representation in the accounting of the tenant (on average in Ukraine as of January 01, 2017).

<i>Indicator</i>	<i>Value</i>
Rental income, USD/ha ¹	112,16
Expenses for rent for shares, USD/ha ²	40,21
Additional income of user, USD/ha annually, up to	71,95
Capitalization rate, Ck, % ³	10,4
Market value of the lease right (indirect capitalization), USD/ha	525,47

¹ Calculated according to the Methodology (Kabinet Ministriv Ukrajinu, 2002), the calculation procedure and information support are described above.

² The average land rent for land shares in Ukraine according to the State Geocadastre as of January 01, 2017 (Kabinet Ministriv Ukrajinu).

³ Adopted at the risk-free rate level - the interest rate on deposits of non-financial corporations (weighted average interest rate in the annual calculation) according to the financial statistics of the NBU. Section 4 "Financial Markets" (Finansova statystyka NBU).

When applying this methodology for valuation of rental rights for specific enterprises, their value is calculated on the actual term of validity of the lease agreement, and the rental income by the region of the actual location of the land plot.

5. DISCUSSION OF THE RESEARCH RESULTS

- 1) In the researches of Samuel A. DiPiazza Jr. and Robert G. Eccles, "Building Public Trust: The Future of Corporate Reporting" (DiPiazza, Eccles, 2002) the conceptual framework for increasing the credibility of financial statements are highlighted, that provide for deepening the content-richness of IFRS through their three-level construction: general, industry-specific and corporate standards. The results of our researches highlight the need and importance of such a development of financial statements. It targets us to work on the development of IAS/IFRS "Agricultural Land".

Our studies have made it possible to identify ways to improve the application of IFRS for the land assets and to develop appropriate organizational and methodological (typical industry-specific accounting policies) and methodical (fair value determination) supports. In addition, accentuating and solving problems of representing the land assets of agricultural enterprises in financial statements, forms a certain scientific contribution to the development of macroeconomic policies.

- 2) A simple and effective application of the procedures of IFRS in the determination of fair value of the agricultural land assets by accountants is proposed. The developed recommendations correspond to the specifics of the industry and the features of the socioeconomic environment of Ukraine. Thus, the valuation of 1 hectare of arable land as of January 01, 2017, according to the recommended accounting policy in Ukraine as a whole, amounts to USD 1.074, according to the Government's standard government valuation - USD 1.138, the average price of the shadow market makes USD 1.250 (Baza zemelnyih resursov EVOLAND) (i.e. a deviation of 5-8%). The fair value of the lease right of 1 hectare, according to our calculations, makes USD 525, the price of the shadow market makes 200 to 500 USD (Baza zemelnyih resursov EVOLAND).

In addition, the developed approaches allow us to determine the fair value of the right of permanent use of land (as a whole in Ukraine as of January 01, 2017, it is USD 969 per 1 hectare of agricultural land). The new accounting policy provides an opportunity to value also the right to emphyteusis (according to the calculations of this research, it is about USD 1,000 per 1 hectare of arable land). (We have to

note that the government methodology of regulatory and monetary land valuation does not value the rights of its lease, emphyteusis or the right of permanent use).

The effectiveness of the application of the new accounting policy as to the agricultural land on the example of Ukraine is shown in Table 4.

Today, there is no such policy either at the level of enterprises or at the state level in Ukraine. As a result, the land assets of agrarian enterprises of Ukraine are valued at only USD 151 million in official financial statements. While using a new accounting policy, this indicator would have been USD 14,3 billion, and taking into account the land potential of commodity enterprises (which are currently do not maintain accounting records) - almost USD 25 billion.

Table 4: Valuation of the land capital of the agrarian sector of Ukraine's economy in the financial statements as of January 01, 2017

Land capital/assets	Area, Million ha ¹	Valuation according to IFRS, USD billion	
		Actually in the financial statements ²	By calculation, when applying a new accounting policy
Arable land (potential)	32.5	0.151	14.3
including:			
<i>Land of non-state enterprises on the right of lease</i>	18.70	0.001	9.82
<i>Lands of citizens (ownership)</i>	9.27	–	(10,0) ³
<i>Land of state-owned enterprises on the right of permanent use</i>	3.2	0.15	3.12
<i>Emphyteusis</i>	1.4	–	1.36

¹ Statistical book "Agriculture of Ukraine for 2016". State Statistics Service of Ukraine (Derzhavna sluzhba statystyky Ukrainy, 2016).

² Calculated by the author according to the data of the State Statistics Service of Ukraine (Oficijnyj sajт Derzhavnoji sluzhby statystyky Ukrainy).

³ Land valuation of commodity enterprises that do not maintain accounting records

6. CONCLUSION

- 1) The implementation and application of a typical industry-specific accounting policy for agricultural land assets to developing countries is an important mechanism for allocation and raising their value in the financial statements. This practice, besides obvious benefits at the national level, will serve as the basis for improving IFRS and possible appearance of a separate standard "Agricultural Land" in IFRS.

- 2) Increasing the attention to agricultural land assets in financial statements is a peculiar and important contribution of the accounting profession to solving ecological and climatic problems and ensuring sustainable development of humanity. Through this component, development of macroeconomic policies is enriched too.
- 3) For Ukraine, the need for such an approach is motivated by needs as follows:
 - overcoming corruption and unshadowing of the agrarian economy. Since, when selling the corporate rights of enterprises, lease rights and emphyteusis land is taken into account only in the “shadow”. It disorients the market, leads to distortions in the calculation of GDP of the country, as well as to the loss of taxes;
 - fair calculation of national wealth of Ukraine. Since now it is not possible to calculate the rights of lease, emphyteusis, permanent land use, and, in fact, the agricultural land itself under the national chart of accounts;
 - improvement of capitalization and investment attractiveness of farm enterprises, small and medium-sized agrarian enterprises. Since land as their most valuable asset is not properly perceived on the investment, lending and insurance market.
- 4) The results of the researches will be presented to the Government of Ukraine, professional associations of agricultural enterprises in the form of memoranda and methodological recommendations. The Federation of Auditors, Accountants and Financiers of the AIC of Ukraine receives from this research materials for referring to the International Accounting Standards Board (IASB) for the development of a separate IAS/IFRS “Agricultural Land”.

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